

What is claimed is:

1. A suturing device for surgical applications comprising:

first and second elements that are rotatable with respect to one another about a central axis, each defining a cutout in its exterior surface, the cutouts extending along a direction substantially parallel to the central axis and sized to accept suture thread material therein; and

a central member disposed along the central axis between said first and second elements to define space therebetween;

wherein when said first element is rotated with respect to said second element, the suture thread material wraps around said central member in said space between said first and second elements to thereby grasp and hold the suture thread material therein.

2. A suturing device according to claim 1, wherein:

said second element comprises deformable material such that said cutout of said second element collapses and grasps the suture material thread disposed therein.

3. A suturing device according to claim 2, wherein:

said second element further defines at least one crimping groove for applying pressure to deform said second element.

4. A suturing device according to claim 1, wherein:

said first and second elements have an annular shape.

5. A suturing device according to claim 1, wherein:

said central member comprises a rotating member affixed to said second member that rotates freely about the central axis with respect to said second member.

6. A suturing device according to claim 5, wherein:

said rotating member fits snugly into a cavity formed in said first element.

7. A suturing device according to claim 6, wherein:

said rotating member includes a recess that is accessible through a port extending along the central axis of said first element.

8. A suturing device according to claim 1, wherein:

said central member comprises a cylinder affixed to said second member that rotates freely about the central axis with respect to said second member.

9. A suturing device according to claim 8, wherein:

said cylinder fits snugly into an annular recess in said first element.

10. A suturing device according to claim 9, wherein:

said cylinder includes an internal recess that mates to a drive tip of a mandrel inserted therein.

11. A suturing device according to claim 10, wherein:

rotation of the mandrel effectuates rotation of said cylinder and said first element mated thereto.

12. A suturing device according to claim 1, wherein:

rotation of said first element with respect to said second element is limited to one of a counter-clockwise direction and a clockwise direction.

13. A suturing device according to claim 12, wherein:

one of said first element and said second element includes an annular ridged surface and another of said first element and said second element includes at least one pawl disposed opposite said annular ridge surface.

14. A suturing device according to claim 1, wherein:

said first and second elements and said central member are formed from bioabsorbable material.

15. A suturing device according to claim 1, wherein:

said first and second elements have a diameter on the order of 0.125 inches and a height on the order of 0.1 inches.

16. A suturing device according to claim 1, further comprising:

a retention button permanently affixed to the suture material thread.

17. A suturing system comprising:

a suturing device including first and second elements that are rotatable with respect to one another about a central axis, each defining a cutout in its exterior surface, the cutouts extending along a direction substantially parallel to the central axis and sized to accept suture thread material therein, and a central member disposed along the central axis between said first and second elements to define space therebetween, wherein when said first element is rotated with respect to said second element, the suture thread material wraps around said central member in said space between said first and second elements to thereby grasp and hold the suture thread material therein; and
a mandrel that is operably coupled to said first element whereby rotation of said mandrel effectuates rotation said first element.

18. A suturing system according to claim 17, wherein:

said first and second elements have an annular shape.

19. A suturing system according to claim 17, wherein:

said central member comprises a rotating member affixed to said second member that rotates freely about the central axis with respect to said second member.

20. A suturing system according to claim 19, wherein:

said rotating member fits snugly into a cavity formed in said first element.

21. A suturing system according to claim 18, wherein:

said rotating member includes a recess that is accessible through a port extending along the central axis of said first element; and

said mandrel is inserted through said port and has a drive tip that mates to said recess, wherein rotation of the mandrel effectuates rotation of the rotating member and said first element mated thereto.

22. A suturing system according to claim 17, wherein:

said central member comprises a cylinder affixed to said second member that rotates freely about the central axis with respect to said second member.

23. A suturing system according to claim 22, wherein:

said cylinder fits snugly into an annular recess in said first element.

24. A suturing system according to claim 22, wherein:

said cylinder includes an internal recess; and

said mandrel is inserted into said cylinder and has a drive tip that mates to said internal recess, wherein rotation of the mandrel effectuates rotation of said cylinder and said first element mated thereto.

25. A suturing system according to claim 17, further comprising:

a retention button permanently affixed to the suture material thread.

26. A method of suturing tissue comprising:

sewing suture material thread through the tissue;

providing a suturing device comprising first and second elements that are rotatable with respect to one another about a central axis, each defining a cutout in its exterior surface, the cutout extending along a direction substantially parallel to the central axis and sized to accept said suture material thread therein, and a central member disposed along the central axis between said first and second elements to define space therebetween, wherein said first and second elements are initially positioned with respect to one another such that said cutouts are substantially aligned with one another;

positioning at least one segment of the suture material thread within said cutouts and subjecting said at least one segment of the suture material thread to a desired amount of tension; and

rotating said first element with respect to said second element to wrap suture material thread around said central member in said space between said first and second elements to thereby grasp and hold suture material thread therein.

27. A method according to claim 26, further comprising the step of:

prior to rotating said first element, deforming said second element such that the cutout of said second element collapses and grasps suture material thread at a point substantially adjacent sewn tissue.

28. A method according to claim 26, wherein:

rotation of the first element is effectuated by rotation of a mandrel with a drive tip that mates to a recessed element of said suturing device.

29. A method according to claim 26, wherein:

rotation of said first element with respect to said second element is limited to one of a counter-clockwise direction and a clockwise direction.

30. A method according to claim 26, wherein:

said first and second elements and said central member are formed from bioabsorbable material.

31. A method according to claim 26, wherein:

said first and second elements have a diameter on the order of 0.125 inches and a height on the order of 0.1 inches.

32. A method according to claim 26, further comprising:

providing suture material thread with a retention button permanently affixed to an end of the suture material thread; and

sewing the surgical material thread in the tissue such that said retention button is disposed adjacent the sewn tissue and the suturing device grasps the other end of the suture material thread.